TARRAGON GROWER'S MANUAL.

Scientific name: Artemisia dracunculus



1. Introduction

Tarragon is an herbaceous perennial herb in the family *Asteraceae* grown for its leaves which are used for culinary purposes. In Kenya, Tarragon production has gained high popularity due to its demand both in local and international markets.

1.1 Uses

The herb is used in variety of dishes, and it is one of the four sweet or fine herbs favored in French cooking along with chervil, parsley and chives. The fresh leaves are used in salads, and vinegar in which fresh tarragon is a distinctive condiment. The dried leaves and flowering tops are used to add tang and piquancy to many culinary dishes, particularly fish, chicken, stews, sauces, omelettes, cheeses, vegetables and pickles. The herb is well known to curb a number of diseases or illnesses.

1.2 Common Varieties

The choice of variety will be guided by market survey findings.

The common varieties grown in Kenya include:

French tarragon: This is the best variety for culinary purposes and is also the most widely grown.

Russian tarragon: This variety has a weaker flavor compared to French tarragon. It is best to use it as soon as possible because it quickly loses flavor with age. It makes more leaves, which are delicious in salads.

Spanish tarragon (Mexican): The flavor of Spanish tarragon is stronger than that of Russian tarragon but weaker than that of French tarragon. It's used to brew tea and can be used for medicinal purposes as well.

1.3 Counties grown

In Kenya the Counties leading in tarragon production are: Nakuru, Murang'a, Embu and Nyandarua.

1.4 Ecological Requirements

Annual temperature: can survive up to 30°C, prefers full sunlight

Water: These plants can cope in dry ground, and care should be taken not to_overwater as this will diminish growth and flavor intensity.

Soils: It's a drought-resistant herb and needs a well-drained, sandy, fertile well drained soil for best growth with PH ranging between 6 -7.3.

2.0 Good Agricultural Practices (GAPs)

Horticulture industry in Kenya is guided by a code of practice KS1758 which is a standard for flowers, vegetable, fruits, herbs and spices for both local and export market. The standard aims at ensuring food safety, environmental sustainability and social accountability by following good agricultural practices from production, processing, transportation and marketing of fresh produce.

The manual seeks to adopt climate smart technologies aimed at increasing production and productivity, enhancing resilience and reducing greenhouse gas(GHG) emissions.

2.1 Crop establishment

Before crop establishment there is need to develop a cropping calendar as guided by market survey findings.

2.1.1 Land preparation

Tarragon requires well-drained soil with good organic matter content. The soil should be tilled to a depth of 15 to 20 centimetres and mixed with 8 tons of well-decomposed farm yard manure or compost. The soil should be levelled, and large stones or debris removed. Cultivate to fine tilth. Raise planting beds 1 metre in width.

2.1.2 Soil and water testing - The testing is recommended before planting to guide on fertilizer and manure application, as well as water suitability for irrigation.

2.1.3 Planting and Spacing

Sourcing of planting materials should be from certified sources or registered stockists.

Planting can be indoor (greenhouse) or outdoor. Propagation is through root division (splits) or stem cuttings, as the seeds are not viable. Planting in raised beds is ideal. If propagating from cuttings, the cuttings should be taken from healthy tarragon plants and rooted in well-drained soil. Cuttings 12cm in height should have leaves removed from the lower 1/3 part, dipped in rooting hormone and planted 30cm x 30cm apart.

Fig 1: Planting spacing for Tarragon



2.2 Crop Management

2.2.1 Crop water requirement

This depends on crop water requirement which is determined by the stage of the crop, soil type and prevailing climatic conditions.

Water requirement for tarragon will mainly depend on the weather conditions and maturity of the plant. Tarragon is a relatively low-maintenance crop, but it needs to be watered regularly, especially during hot weather. Water the transplanted seedlings immediately after planting to help them establish in the field. They can cope in dry grounds, and care must be taken not to over water as this will diminish growth and flavor intensity.

2.2.2 Crop Nutrition

Tarragon plant has low fertilizer requirements and the flavor is intensified when grown in nutrient poor soils, so only fertilize when planting. Apply composted chicken manure every 6 weeks to boost plant growth. Tarragon are light feeders so it needs foliar spray 2 or 3 times during the growing season.

2.2.3 Mulching and Weed management

Weeding is done to prevent weeds from competing with the target crop for growth factors like nutrients, sunlight, space, and water, as well as harboring pathogens that directly affect the performance of the crop.

After planting, the land should be mulched with organic material such as hay or straw to conserve soil moisture and suppress weed growth. The mulch layer should be at least 2-3 inches deep and placed around the base of the plants, taking care not to cover the leaves or stems.

2.2.4 Pruning and Training

Trim back the plants regularly to encourage new growth and prevent them from becoming too woody.

2.2.5 Pest and disease management

Integrated crop management (ICM) is the best option for food safety. These practices include scouting of pests, field hygiene, proper spacing, physical methods, biological methods like use of pheromone traps and others that will only give option of using Pest Protection Products as last option. The products must be registered for use on the crop in Kenya. (www.pcpb.go.ke/list-of-registered-products/

Major Pests, diseases and nutrient deficiencies

Pests	Symptoms	Control
Wormwood Aphic (Aphidoidea)	Plant becomes stunted and misshapen	Wash them off the plant with a strong jet of water
		Use insecticidal soap or pyrethrum
Source: Clemson University		

Thrips (Thysanoptera)	Plants become stunted Leaves are discloured	Use insecticidal soap or botanical insecticides Use the blue sticky traps
Downy mildew (Peronospora sparsa) Source:Yates	Fungal disease that appears as yellowish patches on leaves, causing wilting and leaf drop Pale, pitted spots or blotches on leaves. Sometimes downy mould on undersides of leaves	Improve air circulation and avoid overhead watering.
Powdery mildew Fource:Gardener's path	Fungal disease forming white powdery patches on leaves, reducing plant vitality.	Improve air circulation and apply fungicide
Root rot (rhizoctonia)	Fungal disease affecting the roots, causing wilting and poor nutrient uptake.	Ensure well-draining soil and avoid over watering. Mulching during very cold weather

Tarragon rust	Yellow or white colour on	Remove all debris of
Puccinia dracunculina	the underside of the leaves	infected plant leaves
	Leaves may turn yellow Stunted growth	Avoid overhead irrigation
Source:Smart gardener		

2.3 Harvesting

2.3.1 Maturity indices

Harvesting starts 5-6 weeks after transplanting. Harvesting starts 5-6 weeks after transplanting although this varies depending on variety and growing conditions (soil, temperature and moisture). Wait until just before the plant blooms, when the flavor is most intense.

2.3.2 Harvesting techniques

Young top leaves or shoots of the plant are picked. Harvest tarragon plant by cutting the stem back to about 5 - 6 inches to force new growth and also encourage branching when the plant is at 1 foot minimum tall. Snip leaves and stems by using a garden pruner or scissors. Harvest in the morning after the dew has dried for best flavor and handle leaves gently to avoid bruising.

2.3.3 Expected yields

An average yield of 2000 Kgs/acre and 2500 Kgs/acre is achievable with good agronomic practices in year 1 and year 2 respectively.

2.4 Post- harvest handling

Tarragon is a perishable leafy herb hence proper post-harvest handling is very crucial. This should be done as per the Crops (Horticultural crops) Regulation 2020.

2.4.1 Sorting

Remove the diseased, deformed and poor-quality shoots.

2.4.2 Cooling

Remove excessive field-heat aids greatly in maintaining quality and substantially lengthens the shelf-life for tarragon.

2.4.3 Grading and bunching

Grading is done according to the various sizes. The harvested produce is sized in 10 to 30 cm length as per customer requirement and bunched into 100 grams.

2.4.4 Packaging

The bunches are put in a polythene bag and packed into 1kg boxes. Any other type of packaging depends on the market specification.

2.4.5 Drying

Older shoots can also be harvested for solar drying and packed in air tight containers, or according to market requirements.

2.4.6 Transportation

The packed produce should be transported in closed trucks as per the crops (Horticultural crops) Regulation 2020.

NB: Tarragon for processing should be dried in a cool, dry place with good ventilation. The drying process takes about a week, and the tarragon should be turned regularly to ensure even drying. Once dry, the tarragon can be stored in airtight containers away from direct sunlight.

3.0 Gross margin analysis (1 Acre) as at 2024

Production under shade net

Item	Unit	Quantity	Cost/unit	Total amount in (Ksh)	
				Season 1	Season 2
Gross income	Kg	2000	450	900,000	900,000
Production cost	1				
Ploughing	Acre	1	4,000	4,000	-
Harrowing	Acre	1	2,000	2,000	-
Manure	Tons	6	1,500	9,000	9,000
Posts, G12 wire, binding wire & labour	Ksh	1	100,000	100,000	-
Tank platform	Рс	1	45,000	45,000	-
Tank(10,000L)	Рс	1	30,000	30,000	-
Drip Lines	Rolls	5	10,000	50,000	-
Charcoal cooler	Рс	1	100,000	100,000	-
Seedlings	pcs	2,000	10	20,000	-
Bed making	Mds	8	500	4,000	-
Planting	Mds	8	500	4,000	-
Fertilizer(CAN)	Kg	50	60	3,000	3,000
Fertilizer(TSP)	Kg	50	60	3,000	3,000
Fertilizer	Mds	6	500	3,000	3,000
application					
Insecticides	Lts	5	600	3,000	3,000
Foliar	Lts	5	600	3,000	3,000
Sticky Traps	Pcs	20	200	4,000	4,000
Shade Net	Pcs	25	16,000	400,000	-
Fungicides	Lts	3	1,500	4,500	4,500
Spraying labour	Mds	12	500	6,000	6,000
Weeding	Mds	24	500	12,000	12,000
Harvesting labour	Mds	40	500	20,000	20,000
Crates	Pcs	10	1,000	10,000	-
Packaging Materials	Pcs	20	1,000	25,000	30,000
Total production cost		864,500.00	100,500.00		
Gross margin(Gross income-Total production cost)		35,500.00	799,500.00		

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